快捷芯
KUAIJIEXIN

KJ3407A

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

Advanced Trench Technology
Excellent $R_{DS(ON)}$
Low Gate Charge

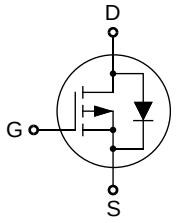
Applications

PWM Applications
Load Switch

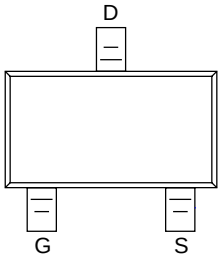
Quick reference

V_{DS} = -30 V
I_D = -4.2 A
P_D = 1.4 W
$R_{DS(ON)}$ ≦ 60 mΩ @ V_{GS}=10 V（Type: 47 mΩ）
$R_{DS(ON)}$ ≦ 85 mΩ @ V_{GS}=4.5 V（Type: 65 mΩ）

Schematic Diagram



Pin Assignment



SOT23-3L

Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape Width	Quantity(pcs)
KJ3407A	SOT23-3L	3407	7 inch	8 mm	3000

2. Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	-4.2	A
I_{DM}	Pulsed Drain Current [1]	-16	A
P_D	Power Dissipation [2]	1.4	W
E_{AS}	Single Pulse Avalanche Energy	2000	mJ
I_{AS}	Avalanche Current	20	A
E_{AR}	Repetitive Avalanche Energy	8	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient [3, 4]	125	℃/W
$R_{\theta JL}$	Thermal Resistance from Junction to Lead	80	℃/W

3. Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_D=-250 μA	-30		-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30 V, V_{GS}=0 V	-	-	-1	μA
I_{GSS}	Gate-Source Leakage	V_{DS}=0 V, V_{GS}=±20 V	-	-	±100	nA
ON Characteristics						
$V_{GS(th)}$	Gate-Threshold Voltage	V_{DS}=V_{GS}, I_D=-250 μA	-1.0	-1.5	-2.0	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=-10 V, I_D=-4.2 A	-	47	60	mΩ
		V_{GS}=-4.5 V, I_D=-3 A	-	65	85	
G_{FS}	Forward transconductance	V_{DS}=-5 V, I_D=-1 A	-	10	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-10 V, V_{GS}=0 V, f=1.0 MHz	-	583	-	pF
C_{oss}	Output Capacitance		-	100	-	
C_{rss}	Reverse Transfer Capacitance		-	80	-	
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=-15 V, V_{GS}=-10 V, R_G=25 Ω, R_L=3.6 Ω, I_D=-4.2 A	-	2.8	-	ns
t_r	Turn-on Rise Time		-	8.4	-	
$t_{d(off)}$	Turn-off Delay Time		-	39	-	
t_f	Turn-off Fall Time		-	6	-	
Q_g	Total Gate Charge	V_{DS}=-15, V_{GS}=0 V, I_D=-4.2 A	-	6.4	-	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	
Q_{gd}	Gate-Drain Charge		-	1.9	-	
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=-4.2 A, V_{GS}=0 V	-	-0.81	-1.2	V

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.
2. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using ≤ 10 s junction-to-ambient thermal resistance.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2 oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.
4. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

4. Typical Characteristics

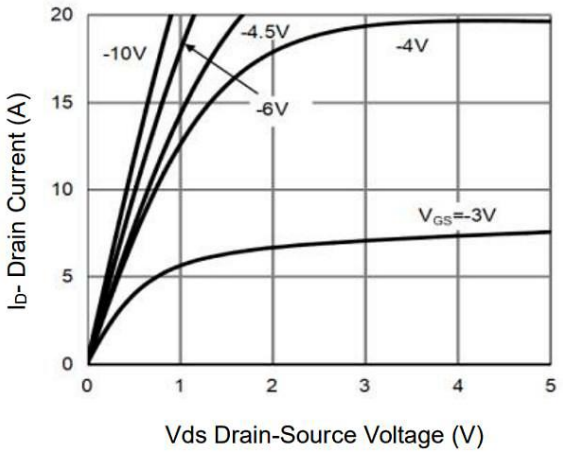


Figure 1. Output Characteristics

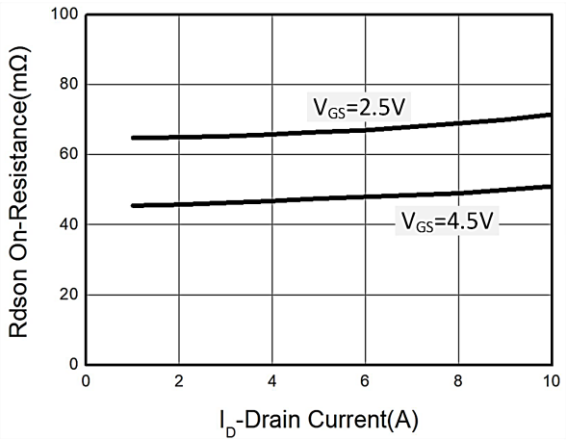


Figure 2. On-Resistance vs. Drain Current

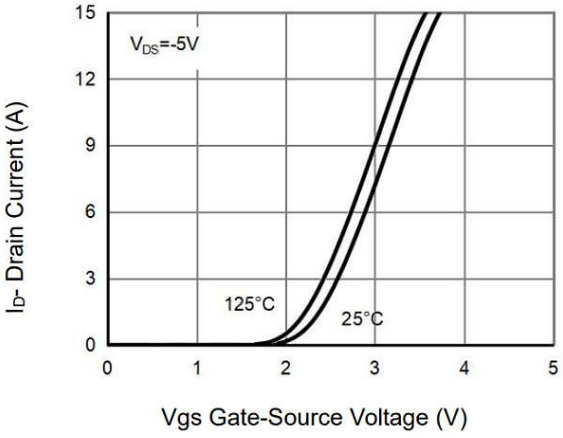


Figure 3. Transfer Characteristic

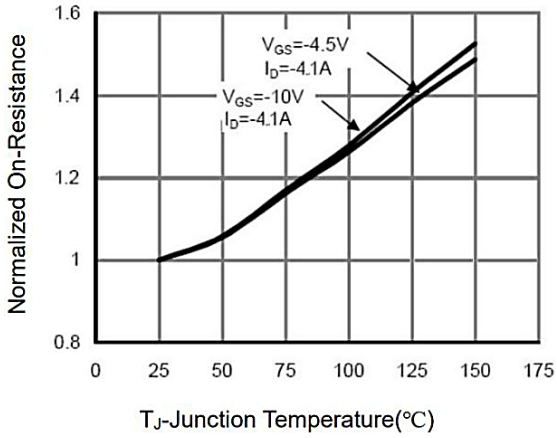


Figure 4. On-Resistance vs. Junction Temperature

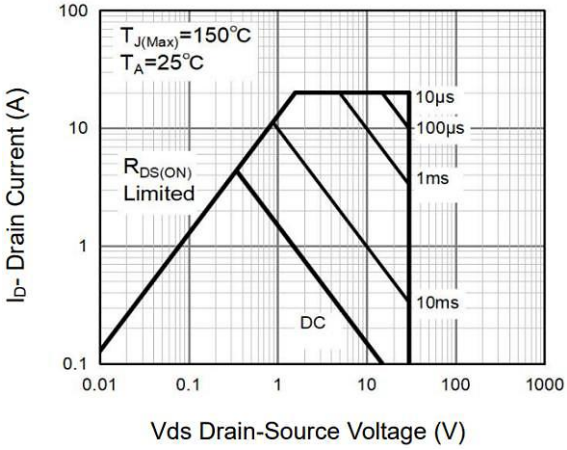


Figure. 5 Safe Operation Area

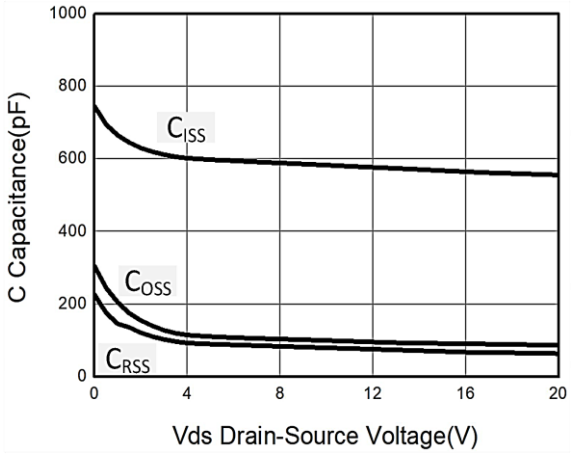


Figure. 6 Capacitance Characteristic

4. Typical Characteristics (Cont.)

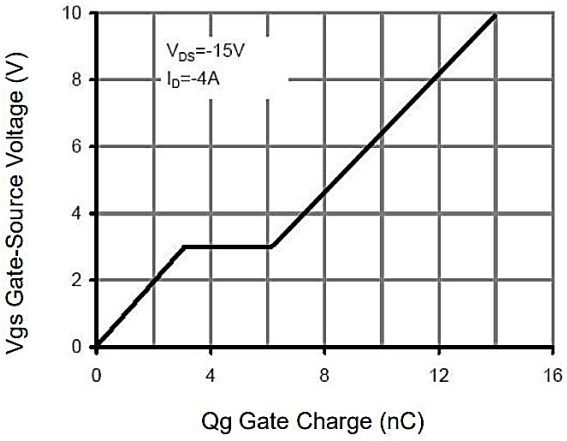


Figure. 7 Gate-Charge Characteristic

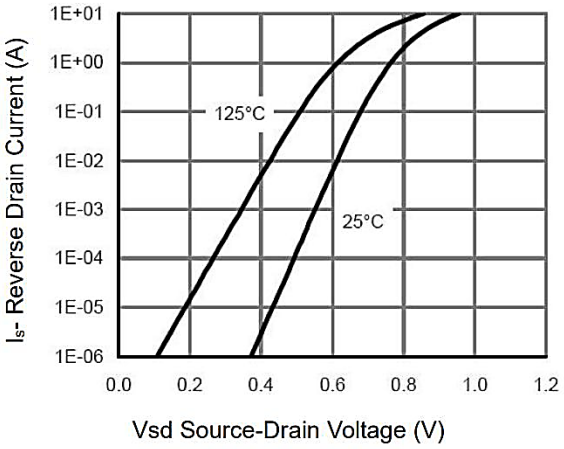
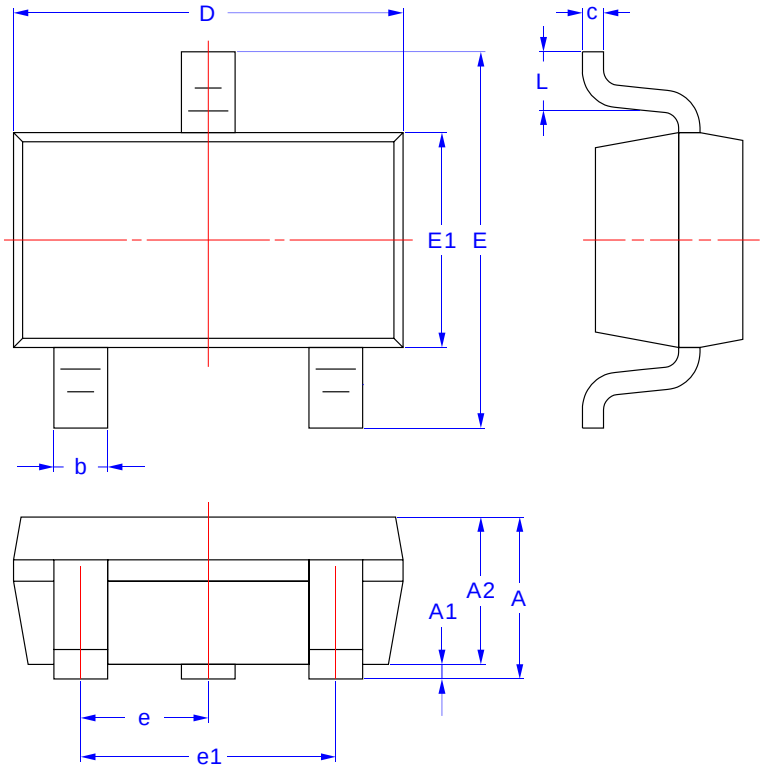


Figure. 8 Body Diode Characteristic

5. Package Mechanical Data

SOT23-3L Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.00	1.45
A1	0.00	0.15
A2	1.00	1.30
D	2.70	3.10
E	2.60	3.00
E1	1.50	1.70
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.30	0.60